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New species of the genera *Rhodoprasina* ROTHSCHILD & JORDAN and *Acosmeryx* BOISDUVAL from Thailand and Vietnam, with a redescription of *R. corolla* CADIOU & KITCHING (Lepidoptera: Sphingidae)

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Abstract: *Rhodoprasina corolla* CADIOU & KITCHING, 1990 from Doi Inthanon in northern Thailand is redescribed. The paratypes of *R. corolla* were found to be a distinct species and are described as *R. corrigenda* KITCHING & CADIOU **n. sp.** A further new species, *R. winbrechlini* BRECHLIN **n. sp.**, together with a new species of *Acosmeryx* BOISDUVAL, [1875], *A. sinjaevi* BRECHLIN & KITCHING **n. sp.**, both from northern Vietnam, are also described. A key is provided to the adult males of the five known species of *Rhodoprasina* ROTHSCHILD & JORDAN, 1903.

Neue Arten der Gattungen *Rhodoprasina* ROTHSCHILD & JORDAN und *Acosmeryx* BOISDUVAL aus Thailand und Vietnam, mit einer Redeskription von *R. corolla* CADIOU & KITCHING (Lepidoptera: Sphingidae)

Zusammenfassung: *Rhodoprasina corolla* CADIOU & KITCHING 1990 vom Doi Inthanon in Thailand wird erneut beschrieben, da es sich bei den Untersuchungen im Rahmen der Beschreibung von *Rhodoprasina winbrechlini* BRECHLIN **n. sp.** aus Vietnam zeigte, daß die Paratypen von *R. corolla* vom Holotypus artlich verschieden sind, eine weitere neue Art darstellen und hier somit als *Rhodoprasina corrigenda* KITCHING & CADIOU **n. sp.** beschrieben werden. Aus Vietnam wird neben *R. winbrechlini* BRECHLIN **n. sp.** außerdem eine neue Art der Gattung *Acosmeryx* BOISDUVAL [1875], *A. sinjaevi* BRECHLIN & KITCHING **n. sp.**, beschrieben. Zusätzlich wird ein Bestimmungsschlüssel für die ♂♂ der zur Zeit 5 bekannten Arten der Gattung *Rhodoprasina* ROTHSCHILD & JORDAN 1903 gegeben.

Introduction

Species of the genus *Rhodoprasina* ROTHSCHILD & JORDAN, 1903 are spectacular green and red montane hawkmoths. For many years, only two species were known, *R. floralis* (BUTLER, 1876) and *R. callantha* JOR-

[1] With a contribution by Jean-Marie CADIOU

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DAN, 1929, both from north-eastern India. Recently, *floralis* was discovered in Nepal (HARUTA 1992, 1994), while *callantha* was found in Thailand (I. J. KITCHING, unpubl. data). In addition, a third species, *R. corolla,* was described from Doi Inthanon in northern Thailand (CADIOU & KITCHING 1990). Latterly, attention has focused on the sphingid fauna of Vietnam, from where *callantha* and *corolla* were recorded (KITCHING & SPITZER 1995). Further collecting led to the discovery of a new *Rhodoprasina* from Mt Fan Si Pan in northern Vietnam. Comparison with the holotype of *corolla* demonstrated that the new taxon is closely related to, although not conspecific with, *corolla.* This new species is described below as *Rhodoprasina winbrechlini* BRECHLIN n. sp.

However, during this investigation, we experienced difficulty in reconciling the external appearance of corolla, as described by CADIOU & KITCHING, with that of the holotype deposited in the collection of The Natural History Museum, London (BMNH). *R. corolla* was a late addition to a virtually completed manuscript. The description of the external appearance was based upon the paratypes in the collection of J.-M. CADIOU, while the male genitalia were described and illustrated from the holotype. It never occurred to the authors that there could be *two* new species of *Rhodoprasina* on Doi Inthanon and the holotype and paratypes were never directly compared, despite being captured at different altitudes.

To clarify the status of the paratypes of *corolla,* we dissected the genitalia and found them to be distinct from the genitalia of both the holotype of *corolla* and the new species from Mt Fan Si Pan. It therefore appears that CADIOU & KITCHING (1990) erred on the side of caution and, in addition to *callantha,* there are indeed two other species of *Rhodoprasina* living on Doi Inthanon. *R. corolla* is restricted to very high altitudes, above 2200 m, while the second species, described below as *Rhodoprasina corrigenda* KITCHING & CADIOU n. sp., is found at the relatively low altitude of 1700 m.

In addition to the new species of *Rhodoprasina,* recent studies in northern Vietnam have also yielded a new species of the genus *Acosmeryx.* This species, which has also been captured in Fujian, China, resembles *A. formosana* (MATSUMURA, 1927) but differs in numerous details. It is described below as *Acosmeryx sinjaevi* BRECHLIN & KITCHING n. sp.

Hawkmoths are currently the subject of studies aimed at evaluating priorities for conservation of biodiversity at global, regional and national scales (KITCHING, in press; KITCHING & VANE-WRIGHT, in prep.). Although

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the taxonomic and distributional data for Sphingidae is perhaps the best currently available for any family of moths, there is yet much to be learned. With regard to Vietnam, KITCHING & SPITZER (1995) listed confirmed records for 117 species of hawkmoths, mostly from the mountainous regions of the north. To these can now be added *Acosmeryx naga* (MOORE, [1858]), *Acosmeryx omissa* ROTHSCHILD & JORDAN, 1903 and *Hippotion rafflesii* (MOORE, [1877]) (J. HAXAIRE, pers. comm.), and *R. winbrechlini* n. sp., thus bringing the total to 121. However, as the Vietnamese fauna becomes still better known, additional Sphingidae can be expected to be found and the final total may well exceed 150 species.

Rhodoprasina corolla CADIOU & KITCHING, 1990

Rhodoprasina corolla CADIOU & KITCHING (1990: 5). Holotype ♂, Thailand, Chiang Mai Province, Doi Inthanon, Radar Station, 2550 m, 25. x. 1986, M. G. ALLEN (BM Sphingid slide #469) [BMNH].

Redescription

Male (figs. 3, 20). Overall colour yellowish-green. Antennae with white scales dorsally; ventrally each flagellomere deeply excavated and bearing long cilia, giving a false impression of being shortly pectinate; length exceeding that of the anterior margin of the discal cell. Head with a low medial crest, concolorous with thorax, tegulae and abdomen dorsally. Foretibia with a long apical spine; tibia and tarsi with a strong continuous dark line. Abdomen ventrally with a weak, darker green median line posterior from segment 4. Forewing relatively short relative to its width, appearing more square than in related species; right forewing length (RFWL) = 41 mm, measured from the costal base to the tip; apex only very slightly falcate, outer edge with very shallow crenulations, almost straight, with apex of Rs_4 not produced; inner edge excavated just before the tornus forming a broad tornal lobe. Upperside with five weak, transverse lines; postmedian line curved basally as it approaches the costa; dorsal edge near base with a red patch; apex of discal cell with a small black stigma with a translucent centre; fringes dark. Underside with weak red coloration over the basal half, strongest in the discal cell but extending outward as far as the median line; median line barely discernable; postmedian line darker green, edged with white along inner edge from costa to M_2; submarginal line weakly indicated by black scales, especially towards the tornus. Hindwing costa straight. Upperside basally red and distally green but with red scaling extending to the outer margin,

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especially from the discal cell and along the inner margin; anal angle between CuA_2 and 1A+2A with a pale green spot of ground colour; fringes white, with slight dark spots on the ends of the veins. Underside with two straight, transverse lines of dark green, edged basally by white; postmedian line somewhat convex.

Male genitalia (after CADIOU & KITCHING) BM sphingid slide #469 (figs. 6, 10 & 14). Uncus undivided, downcurved, apex narrowly truncate; gnathos with two rounded, subventral, posteriorly-directed lobes; subscaphium represented by two very thin, weakly sclerotized bands; anal tube with a small patch of setae dorsolaterally on either side; anterior margin of tegumen concave; saccus V-shaped, with a blunt, posterior lobe projecting slightly between the valve bases; juxta small, rounded V-shape, flanked by heavily sclerotized, slightly concave, marginally serrate, wing-like flanges, which are lightly fused below the juxta; valves short, triangular, inflated, about as long as deep, apex rounded, friction scales absent; harpe an irregularly quadrangular plate lying in a deep, median concavity on the valve, dorsal quarter rugose, remainder covered in short, hair-like spines, distal edge sinuous with very short marginal hairs; ventro-distal margin of harpe produced into two narrow, subequal, strongly sclerotized, incurved hooks, which are basally spinose but apically rugose-smooth, angle between hooks ca. 60°; central membrane of valve basal of harpe thin; transtillae irregularly triangular, each with a large, distally directed, blunt, setose lobe; inner surface of valves and anellus covered in long setae. Aedeagus narrowly cylindrical; coecum elongate and basally rounded; apex of aedeagus widened, with an anteriorly serrate recurved bar on the left side, which is fused ventrally with the tip of the aedeagus, ventral edge downcurved; vesica directed dorsally, membranous, inflated basally with a small, globular, dorsal sac that is directed somewhat to the left and which bears an apical patch of small spines on a very small, anteriorly-directed secondary sac; beyond the diverticulum, the vesica diameter decreases abruptly to form a narrow tube.

Female and immature stages. Not known.

Diagnosis. *R. corolla* differs from all other species of *Rhodoprasina* in that the red coloration of the hindwing extends to the outer margin. A comparison with the male genitalia of *floralis* (figs. 9, 13 & 17, BMNH sphingid slide #468) and *callantha* was provided by CADIOU & KITCHING (1990). The male genitalia of a second *floralis* (Nepal: Godaveri, mixed forest,

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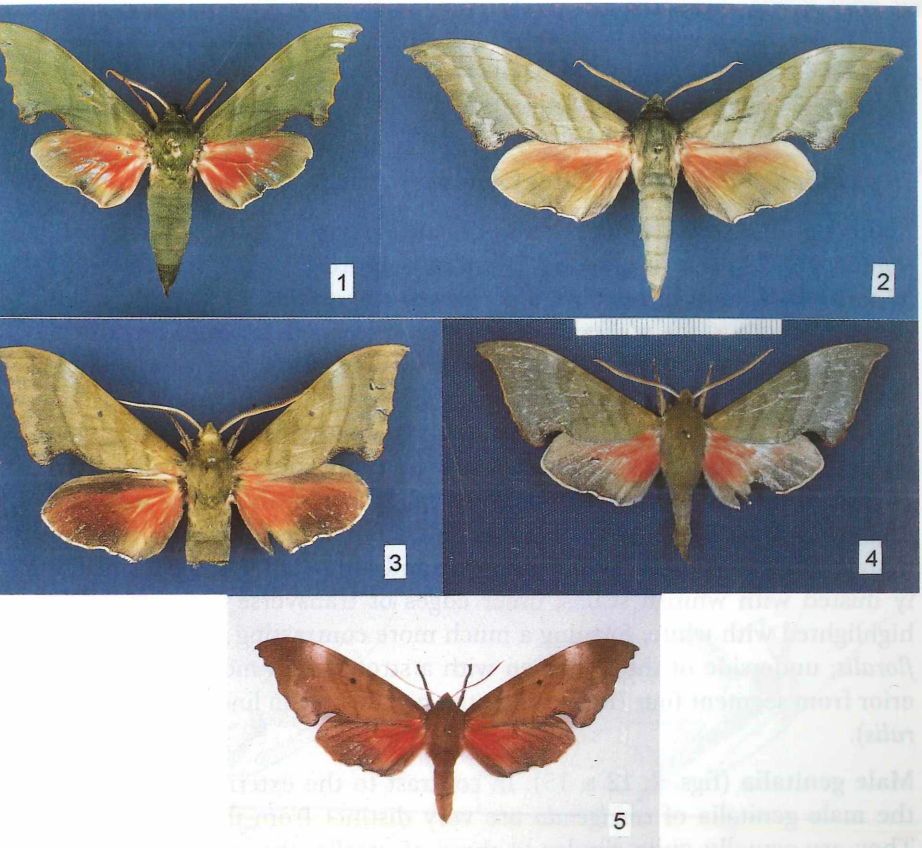
1500 m, 30. IV. 1995, leg. Col. M. G. ALLEN, BM sphingid slide #741) are almost identical to those of the Assamese specimen.

Distribution. *R. corolla* is presently known only from the holotype, captured at high altitude near the summit of Doi Inthanon. Although *corolla* may occur on other high mountains in northern Thailand, such as Doi Pa Hom Pok and Khao Kha Khaeng, it may well be that there is no other mountain in Thailand that is sufficiently high. However, there are mountains in northern Burma and Laos that equal or exceed Doi Inthanon in altitude and *corolla* may well occur in such places.



Colour plate I. Fig. 1: *Rhodoprasina floralis* (Butler), ♂ Nepal: Phulchoki Peak, montane & oak for., 2760 m, 29. v. 1983, leg. Lt. Col. M. G. ALLEN (coll. BMNH), RFWL = 43 mm. **Fig. 2:** *Rhodoprasina corrigenda* n. sp., paratype ♂, Thailand: Doi Inthanon, XI. 1989, E90.4 (coll. J.-M. CADIOU), RFWL = 51 mm. **Fig. 3:** *Rhodoprasina corolla* CADIOU & KITCHING, holotype ♂. **Fig. 4:** *Rhodoprasina winbrechlini* n. sp., holotype ♂. **Fig. 5:** *Rhodoprasina winbrechlini* n. sp., paratype ♀.

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Rhodoprasina corrigenda KITCHING & CADIOU n. sp.

Rhodoprasina corolla CADIOU & KITCHING; CADIOU & KITCHING, 1990: 5 [misidentification, in part (paratypes)].

Rhodoprasina corolla CADIOU & KITCHING; KITCHING & SPITZER, 1995: 174. [misidentification].

Holotype: ♂, Thailand: Chiang Mai Province, Doi Inthanon, checkpoint, 1700 m, 9. XI. 1988, ex coll. R. D. KENNETT [BMNH].

Paratypes: 19 ♂♂, Thailand, Chiang Mai Province, Doi Inthanon, checkpoint, 1700 m, ex coll. A. PINRATANA; 24. X. 1985 (1 ♂), XI. 1989 (10 ♂♂) [coll. J.-M. CADIOU]; 4. XI. 1988 (1 ♂), 9. XI. 1988 (1 ♂) [coll. H. SCHNITZLER]; 7 XI. 1988 (1 ♂), 8. XI. 1988 (1 ♂), 7. XII. 1988 (1 ♂), 10. XII. 1988 (1 ♂) [coll. St Gabriel's College, Bangkok]; Thailand: Chiang Mai province, Doi Inthanon National Park, 2200-2500 m, 22.-23. X. 1984, KARSHOLT, LOMHOLDT & NIELSEN, 2 ♂♂ [ZMUC].

Additional material: 1 ♂, [Vietnam], Haut-Tonkin, Prov. de Lao-Kay, Chapa, ex coll. LE MOULT [coll. J.-M. CADIOU].

Description and diagnosis (after CADIOU & KITCHING 1990).

Male (fig. 2). Overall colour bluish-green. Externally most similar to *R. floralis* (fig. 1), differing in the following features. Larger, RFWL = 50-57 mm (39-45 mm in male *floralis*); antenna short (as in *floralis*), about equal in length to the posterior edge of the discal cell, not reaching discal spot; outer margin of the forewing less excavated below apex, less crenulate and with a broader tornal lobe; upperside with transverse bands accented with silvery-white scales, especially along their distal edges, giving the wing a reflective appearance; hindwing proportionally broader than in *floralis;* upperside with a thin, green median line; the green marginal area extends basally beyond this line and the red basal area is therefore more restricted than in *floralis;* forewing and hindwing undersides heavily dusted with whitish scales; inner edges of transverse bands strongly highlighted with white, forming a much more contrasting pattern than in *floralis;* underside of the abdomen with a strong, dark median line posterior from segment four (rather than the narrow, green line present in *floralis*).

Male genitalia (figs. 7, 12 & 15). In contrast to the external appearance, the male genitalia of *corrigenda* are very distinct from those of *floralis.* They are actually quite similar to those of *corolla,* the main differences from which are as follows: uncus very heavily sclerotized, underside flat, apex slightly notched; gnathos a simple narrow strap, without a pair of subventral, posteriorly-directed, rounded lobes; juxta with short lateral

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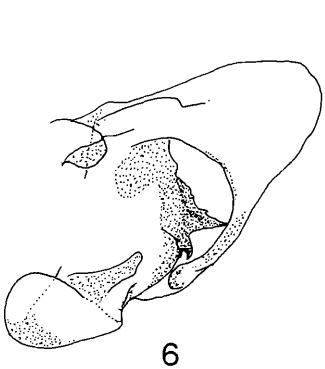
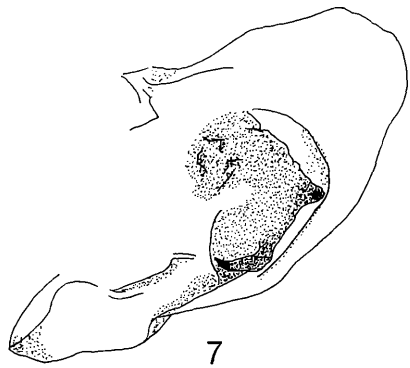
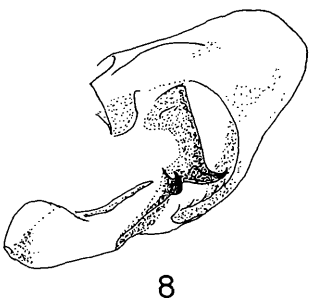
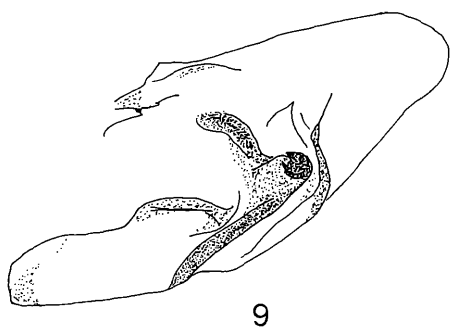
"wings" with longer, more irregular marginal teeth; harpe broader, distal edge irregular and surface basally with low irregular ridges, the whole covered with long hairs that continue basally onto the central membrane of the valve, which itself is thrown into low ridges and furrows; distal hooks of the harpe well separated, with the dorsal hook arising almost half-way up the distal edge of the harpe; transtillae each with a bar directed medially, the tips of which overlap slightly and the inner edge of which is almost a right angle; aedeagus and coecum each shorter and thicker; serrate, apical recurved bar on left side of aedeagus lacking a dorsal tooth and with a distinct, broad, downcurved, apical lobe with









Figs. 6–9: Male genitalia, right valve. **Fig. 6:** *Rhodoprasina corolla* CADIOU & KITCHING, holotype. **Fig. 7:** *Rhodoprasina corrigenda* n. sp., paratype, Thailand: Doi Inthanon, XI. 1989 (coll. J.-M. CADIOU). **Fig. 8:** *Rhodoprasina winbrechlini* n. sp., holotype. **Fig. 9:** *Rhodoprasina floralis* (BUTLER), India: Darjeeling, Tiger Hill, 2000 m, 4. VI. 1990, leg. T. MIYASHTA, BM 1990-171, BM sphingid slide #468.

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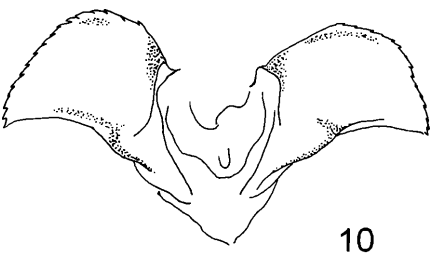
small marginal teeth; vesica directed strongly towards the right side but not dorsally, thus coaxial with aedeagus; dorsal diverticulum elongate, with the secondary, spinose sac directed dorsally.

Female and immature stages. Not known.

Distribution and biology. *R. corrigenda* occurs between 1700 m and 2500 m on Doi Inthanon in northern Thailand. The exact altitude at which the "Chapa" specimen was collected is unknown, but it is most probable that it was captured between 1600 and 1800 m on Mt Fan Si Pan. *R. corrigenda* flies at the beginning of the dry season in northern Thailand and before the beginning of the cold season in late December, when night-time temperatures fall regularly below 10° The holotype of *corolla* was also captured in October and may have a similar flight period to *corrigenda*.



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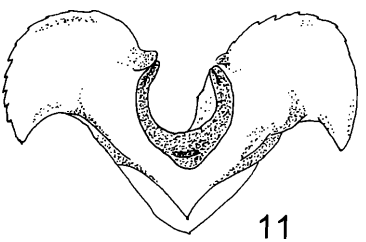

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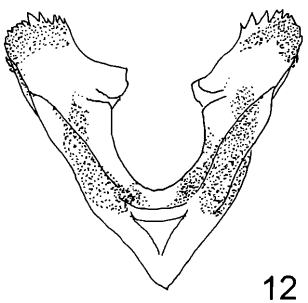

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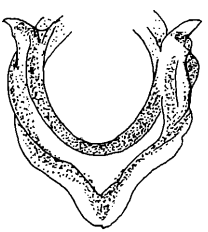

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Figs. 10–13: Male genitalia, juxta. **Fig. 10:** *Rhodoprasina corolla* CADIOU & KITCHING. **Fig. 11:** *Rhodoprasina winbrechlini* n. sp. **Fig. 12:** *Rhodoprasina corrigenda* n. sp. **Fig. 13:** *Rhodoprasina floralis* (BUTLER). Data as figs. 6–9.

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Rhodoprasina winbrechlini BRECHLIN n. sp.

Holotype: ♂, Vietnam (N) (Tonkin): Lao Cay Province, Mt Fan Si Pan (N-Seite), Sa Pa (= Chapa), Prim. Wald, 22°17'N 103°44'E, 1600 m, 1.-5. III. 1995, 12-6° C, R. BRECHLIN [ex coll. R. BRECHLIN, to be deposited in coll. Museum WITT, München].

Paratype: ♀, Vietnam (N) (Tonkin): Lao Cay Province, Mt Fan Si Pan (N-Seite), Sa Pa (= Chapa), Prim. Wald, 22°19'N 103°45'E, 2240 m, 3. III. 1995, 8-4° C, R. BRECHLIN [coll. R. BRECHLIN].

This species is dedicated to my father Dr. Winfried BRECHLIN, with whose help I started collecting butterflies as a boy of ten and with whom I have made numerous collecting trips to many countries around the world. On one of our first visits to South East Asia, he was called "Win" by the local Indonesian people.

Description and diagnosis

Male (figs. 4, 22). Overall colour green with a slight bluish tinge. Very similar to *R. corolla,* differing only in the following features: smaller, RFWL = 37 mm; forewing apex distinctly falcate with apex of Rs_4 produced as a short tooth; tornal lobe narrower and more hooked; translucent patch in centre of stigma larger; forewing postmedian line running straight to the costa; red coloration on forewing underside less extensive and on hindwing upperside not extending beyond median line, distal half of wing therefore green; postmedian line on hindwing underside straight.

Male genitalia (figs. 8, 11 & 16). Similar to those of *R. corolla,* differing in the following features: distal part of uncus dorso-ventrally narrower (not ventrally inflated), more heavily sclerotized; anterior margin of tegumen straight; saccus narrower, somewhat Y-shaped; distal edge of harpe almost straight with long marginal hairs, ventral hook more strongly recurved dorsally than in *corolla;* central membrane of valve basal to harpe thickened, tough and whitish; transtillae each with a bar directed medially but the tips of which remain well separated and the inner edge of which is curved; coecum longer than in *corolla,* sinuous; serrate, apical recurved bar on left side of aedeagus with larger dorsal tooth, smaller and less regular ventral teeth and with the ventral edge upcurved; vesica as in *corrigenda* but proportionally smaller.

Female (fig. 5). Larger than the male, RFWL = 45 mm. Ground colour light brown, rather than green. Antenna very short, not exceeding fore-

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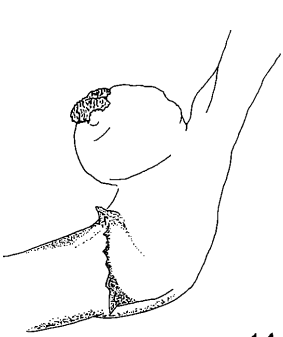

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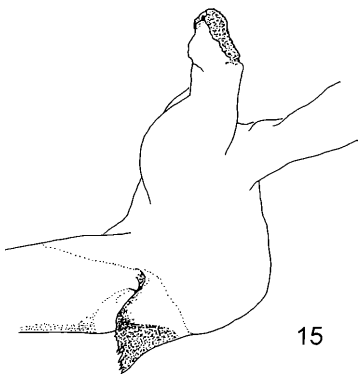

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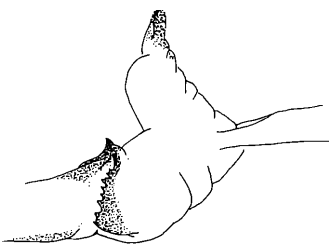

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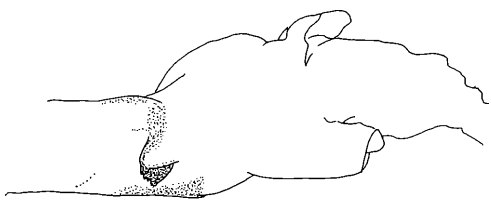

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Figs. 14–17: Male genitalia, apex of aedeagus and base of vesica. **Fig. 14:** *Rhodoprasina corolla* CADIOU & KITCHING. **Fig. 15:** *Rhodoprasina corrigenda* n. sp. **Fig. 16:** *Rhodoprasina winbrechlini* n. sp. **Fig. 17:** *Rhodoprasina floralis* (BUTLER). Data as figs. 6–9.

wing median band; with dorsal white scales (rather than the cream-coloured scales of the male). Forewing with a silvery hue on the submarginal area and around the postmedian line, most pronounced near the costa. Forewing with apices of Rs_3, Rs_4 and M_1 produced, outer margin strongly excavated from M_1 to M_3; apex of forewing cell with a strong black spot, lacking the translucent centre that is present in that of all male *Rhodoprasina*. Hindwing darker with an overall reddish-brown hue; the strong red colour restricted basally as in the male. Underside very similar to the male, differing only in the ground colour being of a pinkish hue and in the pattern being more granulated. Underside of abdomen lacking any trace of a median line.

Immature stages. Unknown.

Distribution and biology. *R. winbrechlini* is known only from Mt Fan Si Pan in northern Vietnam, from 1600 m to 2200 m (providing the female

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is correctly associated, as we consider it to be). With a forewing length of only 37 mm in the male, it is the smallest species in the genus. Unlike *corolla* and *corrigenda, winbrechlini* appears to be a cold season species, the adult flying when night-time temperatures regularly fall below 10° C.

Discussion

With so few specimens of *corolla, winbrechlini* and *corrigenda,* it is difficult to make meaningful statements about the distributions and biology of the five species of *Rhodoprasina*. Certainly, *callantha* stands apart from the others, not only in morphology (JORDAN 1929) but also in phenology. In northern Thailand, *callantha* has apparent peaks in adult abundance in April-May and July-September (I. J. KITCHING, unpubl. data). This pattern is suggestive of two generations per year, with adult emergence synchronized to the onset of the rains in late April-early May, followed by a second generation towards the end of the rainy season. However, single specimens have been caught in most months (except March and December) and thus the pattern may be more a sampling artefact than a real phenomenon.

In contrast, although data are relatively sparse, the other four species all seem to have only a single generation per year. The flight period of *floralis* in the Katmandu Valley, Nepal, where collections have been made year round, is from mid-April to mid-June only (HARUTA 1992, 1994, ALLEN 1993). It is unlikely that a second generation would have been overlooked in this locality. *R. corolla* and *corrigenda* may each have only a single flight period, from October to December, while *winbrechlini* flies in late February to early March.

Of the five species, data on the biology of the immature stages are available for only two. During the rainy season in Assam, BELL & SCOTT (1937) found the larvae of *callantha* to be fairly common, but very localized, in forests with heavy rainfall at an elevation of around 5000 feet (1550 m). The only recorded larval hostplant is *Quercus fenestrata* (Fagaceae). FELLOWES-MANSON (1906) provided a brief description of the larva of *floralis,* reared on *Acer campbelli* (Aceraceae). The immature stages and larval hostplants of *corolla, winbrechlini* and *corrigenda* all remain to be discovered.

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Key to *Rhodoprasina* males

1	Hindwing costa produced as a strongly convex lobe near apex; foretibia without an apical spine	*callantha*
–	Hindwing costa straight; foretibia with an apical spine	2
2	Antenna longer than anterior margin of discal cell	3
–	Antenna shorter than anterior margin of discal cell, approximately equalling the length of the posterior margin	4
3	Hindwing upperside flushed red to the outer margin; forewing upperside with postmedian line recurved basally towards costa; colour yellowish-green	*corolla*
–	Hindwing upperside green beyond median line; forewing upperside with postmedian line running straight to costa; colour green with a bluish tinge	*winbrechlini*
4	Forewing outer edge distinctly scalloped; abdomen ventrally with a thin, dark green median line from segment 4 to segment 8; hindwing upperside with marginal green colour not extending beyond median line	*floralis*
–	Forewing outer edge only slightly sinuate; abdomen ventrally with a thick, dark brown median line from segment 4 to segment 8; hindwing upperside with marginal green colour extending basally beyond median line, almost reaching discal cell	*corrigenda*

Acosmeryx sinjaevi Brechlin & Kitching n. sp.

Acosmeryx sp. near *formosana* Matsumura sensu Kitching & Spitzer, 1995: 187

Holotype: ♂, Vietnam (N) (Tonkin): Thanh Hoa Province, Ben En National Park, 40 km SW of Thanh Hoa, 18°40'N 105°40'E, 200 m, 22.-30. xi. 1994, Sinajev [sic] & Simonov [ex coll. R. Brechlin, to be deposited in coll. Museum Witt, München].

Paratype: ♂, Vietnam (N) (Tonkin): Lao-Cay Province, Chapa (= Sa Pa), Mt Fan-Si-Pan, 22°15'N 103°46'E, 1800 m, 8.-29. v. 1993, Sinai & Simonov [coll. J.-M. Cadiou].

Additional material: 2 ♂♂, China: North Fujian, Guangzhi, Yuenji, Wuyi Mt., 1400 m, vi. 1994 [coll. J.-M. Cadiou] These two specimens are in very poor condition.

This species is named in honour of a good friend and great field collector, Victor Sinjaev (Moscow), who captured both types.

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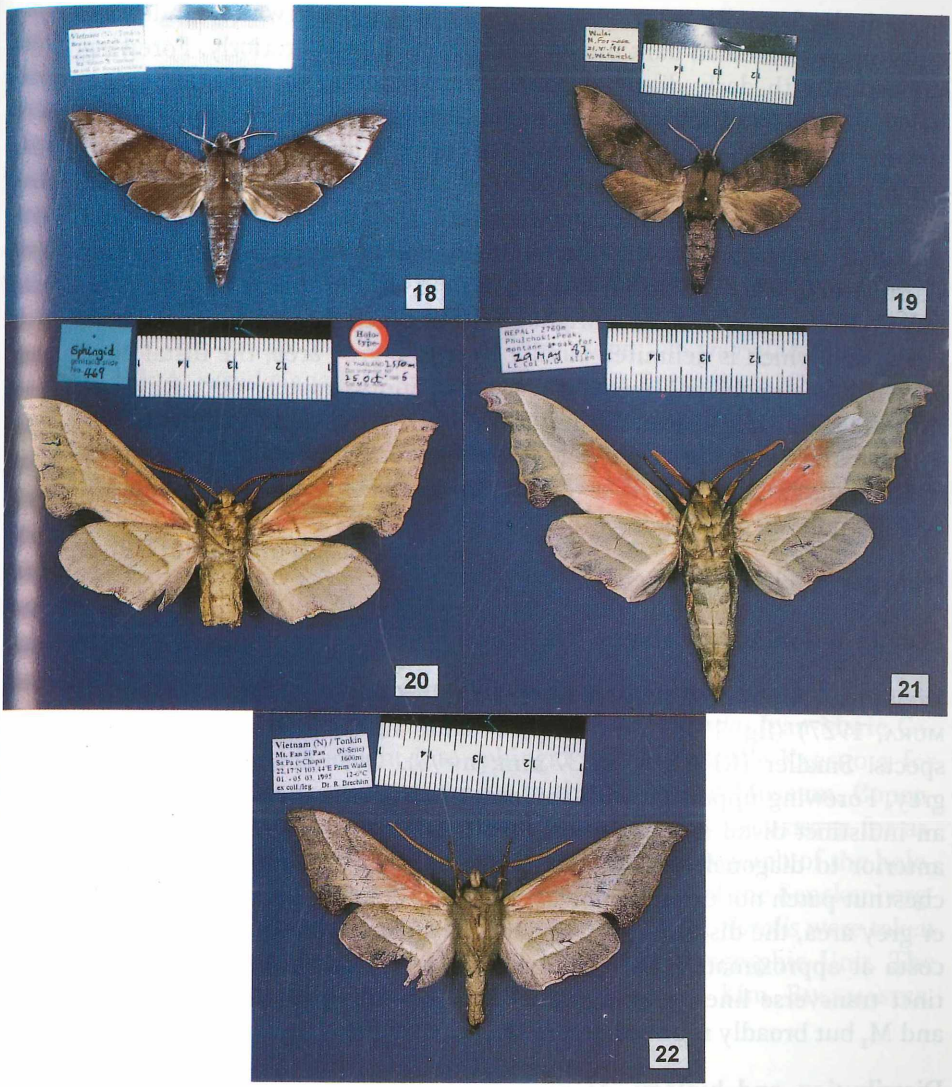

Colour plate II. Fig. 18: *Acosmeryx sinjaevi* n. sp., holotype ♂. **Fig. 19:** *Acosmeryx formosana*, ♂, Taiwan. **Fig. 20:** *Rhodoprasina corolla* CADIOU & KITCHING, holotype, underside. **Fig. 21:** *Rhodoprasina floralis* (BUTLER), underside. **Fig. 22:** *Rhodoprasina winbrechlini* n. sp., holotype ♂, underside.

Description

Male (fig. 18). Overall colour bluish-grey and darker shades of brown. Head with a low median crest; antennae dorsally dirty-white. Thorax dark brown with grey tegulae. Abdomen with median brown triangles pointing

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posteriorly, laterally grey; tergites thinly edged with white; underside chestnut with median dark brown triangles pointing anteriorly. Forewing upperside with dark, diagonal band from the costa to the outer edge, which delimits a distal, pale grey, apical area that contrasts strongly with the rest of the wing; antemedian lines convergent on dorsal margin of wing; postmedian and submarginal lines posterior to the diagonal band strongly marked and parallel; postmedian line anterior to diagonal band thin and conspicuously dentate; submarginal line represented by four short, strong, black dashes on Rs_4, M_1, M_2 and M_3; underside grey over the basal two-thirds; apex with a bright chestnut patch that extends posterior to Rs_4 and which is delimited basally by a pale grey area, the distal edge of which is straight and meets the costa at approximately 60°; RFWL = 39 mm. Hindwing upperside uniformly dark grey; underside with five distinct transverse lines on a pale chestnut ground overlaid by pale grey scaling; marginal area dark, extending inward between veins M_1 and M_3, apically pointed on M_2.

Male genitalia. Not dissected.

Female and immature stages. Not known.

Diagnosis. *Acosmeryx sinjaevi* is very similar to *A. formosana* (MATSUMURA, 1927) (fig. 19). However, *formosana* differs in the following respects: Smaller (RFWL = 35-37 mm; n = 5). Overall colour brownish-grey. Forewing upperside with the outer half of the diagonal band with an indistinct distal margin; apical area less contrasting; postmedian line anterior to diagonal band blurred and indistinct; underside with apical chestnut patch not extending beyond Rs_4 and delimited basally by a darker grey area, the distal edge of which is irregularly convex and meets the costa at approximately 90° Hindwing underside with only three indistinct transverse lines; grey marginal area extending inward between M_1 and M_3 but broadly rounded across M_2.

Distribution and biology. At present, *A. sinjaevi* is known only from northern Vietnam and Fujian in China. Although appearing rather disjunct, this pattern is similar to that of several other Sphingidae that appear to have distributions centred on northern Vietnam and SE China (e.g. *Clanis schwartzi* CADIOU, 1993, *Acosmeryx pseudomissa* MELL, 1922, and *Micracosmeryx chaochauensis* (CLARK, 1922) and further corroborates

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this area as an area of endemism hitherto overlooked (KITCHING & SPITZER 1995).

Available data for flight times suggests *A. sinjaevi* has at least two generations a year, in May–June and November.

Discussion

The presence of median grey triangles ventrally on the abdominal segments in *A. sinjaevi* places this species in the *shervillii* BOISDUVAL species-group. This group also includes *A. formosana, A. shervillii* BOISDUVAL, [1875], *A. pseudonaga* BUTLER, 1881, *A. socrates* BOISDUVAL, [1875] and *A. miskini* (MURRAY, 1873). In all other *Acosmeryx,* ventrally the abdomen has only a narrow median line. Within the species-group, it is most likely that *A. sinjaevi* has a sister-species relationship with *A. formosana,* but further research into the phylogenetic relationships of *Acosmeryx* is needed to confirm this hypothesis.

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